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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,219	09/05/2003	Chandra Mouli	M4065.0571/P571	6990
24998	7590	01/11/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			PHAM, LONG	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	
			2814	

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/655,219

Applicant(s)

MOULI ET AL.

Examiner

Long Pham

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-74 is/are pending in the application.
- 4a) Of the above claim(s) 48-58 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 59-68, 71 and 72 is/are allowed.
- 6) ☒ Claim(s) 39-47 and 74 is/are rejected.
- 7) ☒ Claim(s) 69, 70 and 73 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: labeled drawings.

DETAILED ACTION

General Information

The labeled drawing sheet(s) of the present invention are attached to show examiner's understanding of the disclosed and claimed inventions.

Election/Restrictions

In response to applicants' comments in the election dated 11/15/04, it is agreed that independent claim 74 is generic to claims 39, 48, 59, and 67. If claim 74 is allowed, claim 48 will also be allowed.

Drawings

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

1. Claim 43 recites the limitation "said act" in line 1. There is insufficient antecedent basis for this limitation in the claim.
2. Claim 46 recites the limitation "said act" in line 1. There is insufficient antecedent basis for this limitation in the claim.
3. Claims 69, 70, and 73 recite the limitation "said act" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 39, 42, 43, 46, 47, and 74 are rejected under 35 U.S.C. 102(e) as being anticipated by Rhodes (US pub 2004/0201072).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With respect to claims 39 and 74, Rhodes '072 teaches a method of forming a photodiode for a pixel sensor cell, said method comprising:

- forming at least one isolation region 42 in a substrate 10, fig. 6;
- forming a gate 102 of a transistor over said substrate, said gate being spaced apart from said at least one isolation region, fig. 6;
- forming a first doped layer 10 of a first conductivity type in said substrate, fig. 6;
- forming a doped region 18 of a second conductivity type in said doped layer, fig. 6;

- forming a second doped region 20 of said first conductivity type in said substrate by implanting ions of said first conductivity type at an incidence angle with said substrate different than a zero degree angle in an area of said substrate defined between said gate and said at least one isolation region, said gate inherently acting as an implant mask for said incidence angle, said second doped layer being in contact with

said isolation region and being displaced laterally from an electrically active portion of said gate by a distance.

With respect to claim 42, Rhodes '072 further teaches the first conductivity type is p-type and the second conductivity type is n-type. See [0030-0038].

With respect to claim 43, Rhodes '072 further teaches forming a photoresist layer over said substrate and said gate and patterning said photoresist layer to expose said area of substrate between said gate and said at least one isolation region. See [0037].

With respect to claim 46, Rhodes '072 further teaches directing a dopant at said incidence angle which is different than a zero degree angle in said area of said substrate located between said gate and said at least one isolation region. See figs. 1-6 and [0038].

With respect to claim 47, Rhodes '072 further teaches said photodiode is formed as a p-n-p photodiode. See [0037].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 40, 41, 44, and 45 are rejected under 35 U.S.C. 103(a) as being obvious over Rhodes (US pub 2004/0201072).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed

in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

With respect to claims 40 and 41, Rhodes '072 fails to teach the range for the lateral displacement.

However, it would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value or range for the lateral displacement through routine experimentation and optimization to obtain optimal or desired device performance because the lateral displacement is a result-effective variable and there is no evidence indicating that it is critical or produces any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05.

With respect to claim 44, Rhodes '072 fails to teach the range for the angle of implantation.

However, it would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value or range for the angle of implantation through routine experimentation and optimization to obtain optimal or desired device performance because the angle of implantation is a result-effective variable and there is no evidence indicating that it is critical or produces any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05.

With respect to claim 45, Rhodes '072 fails to teach the ranges for the height of the gate and the thickness of the photoresist layer.

However, it would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value or range for height of the gate and thickness of the photoresist through routine experimentation and optimization to obtain optimal or desired device performance because height of the gate and the thickness of the photoresist are result-effective variables and there is no evidence indicating that they are critical or produce any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05.

Allowable Subject Matter

5. Claims 59-68, 71 and 72 are allowed. 69, 70 and 73.
6. Claims 69, 70, and 73 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on M-F, 7:30AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Long Pham

Primary Examiner

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